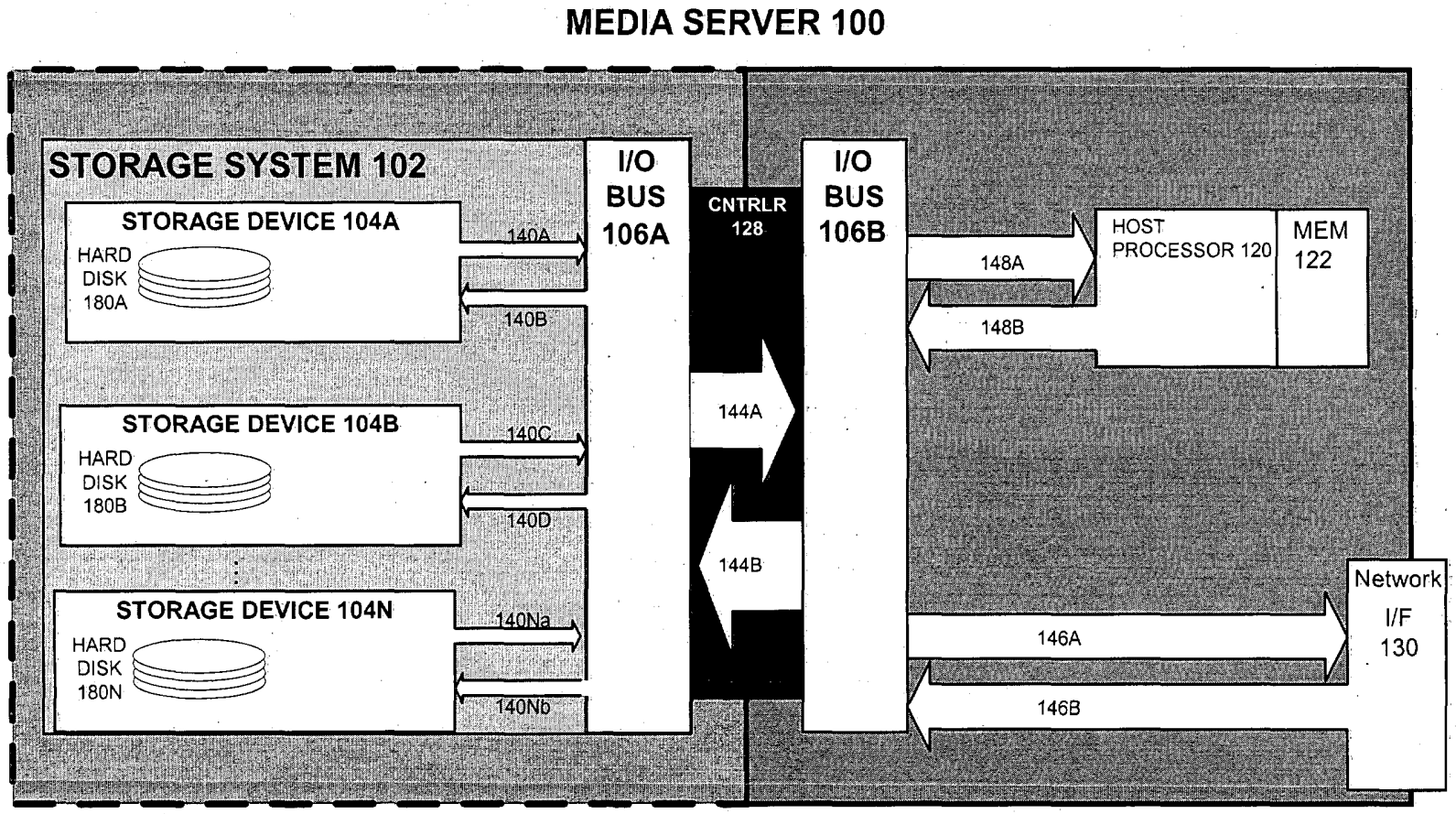

Figure 1
Typical media server

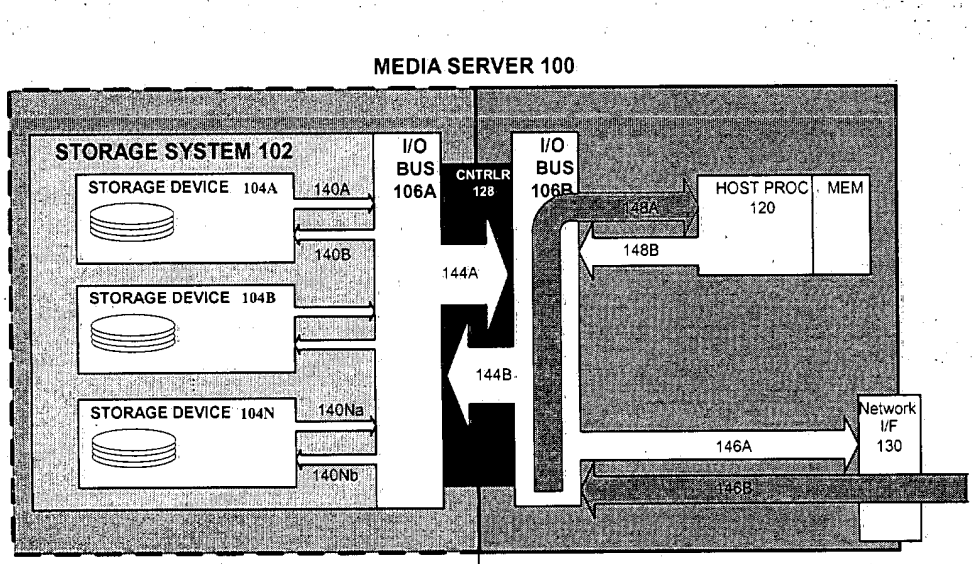

Fig. 2A

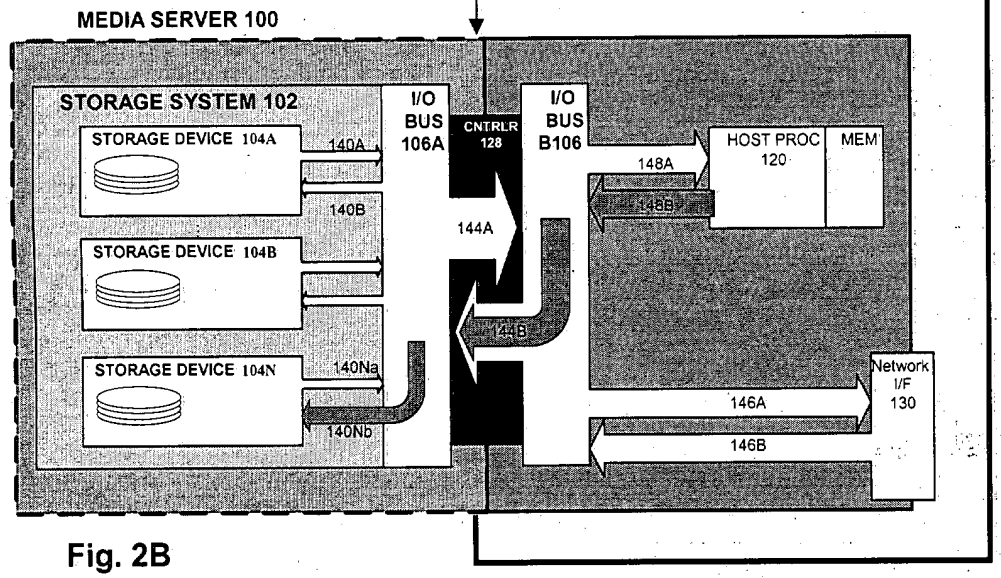

Fig. 2B

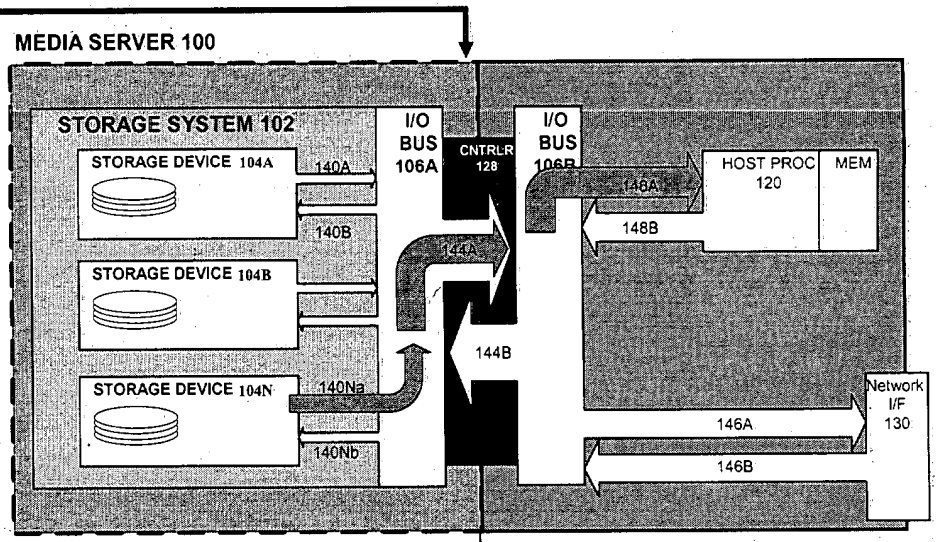

Fig. 2C

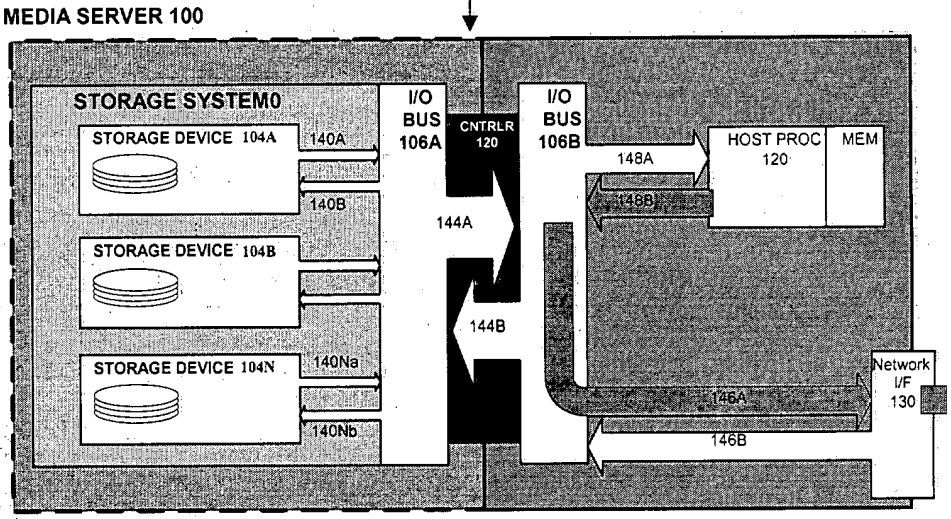

Fig. 2D

Figure 2 Prior Art: Typical Digital Media Server

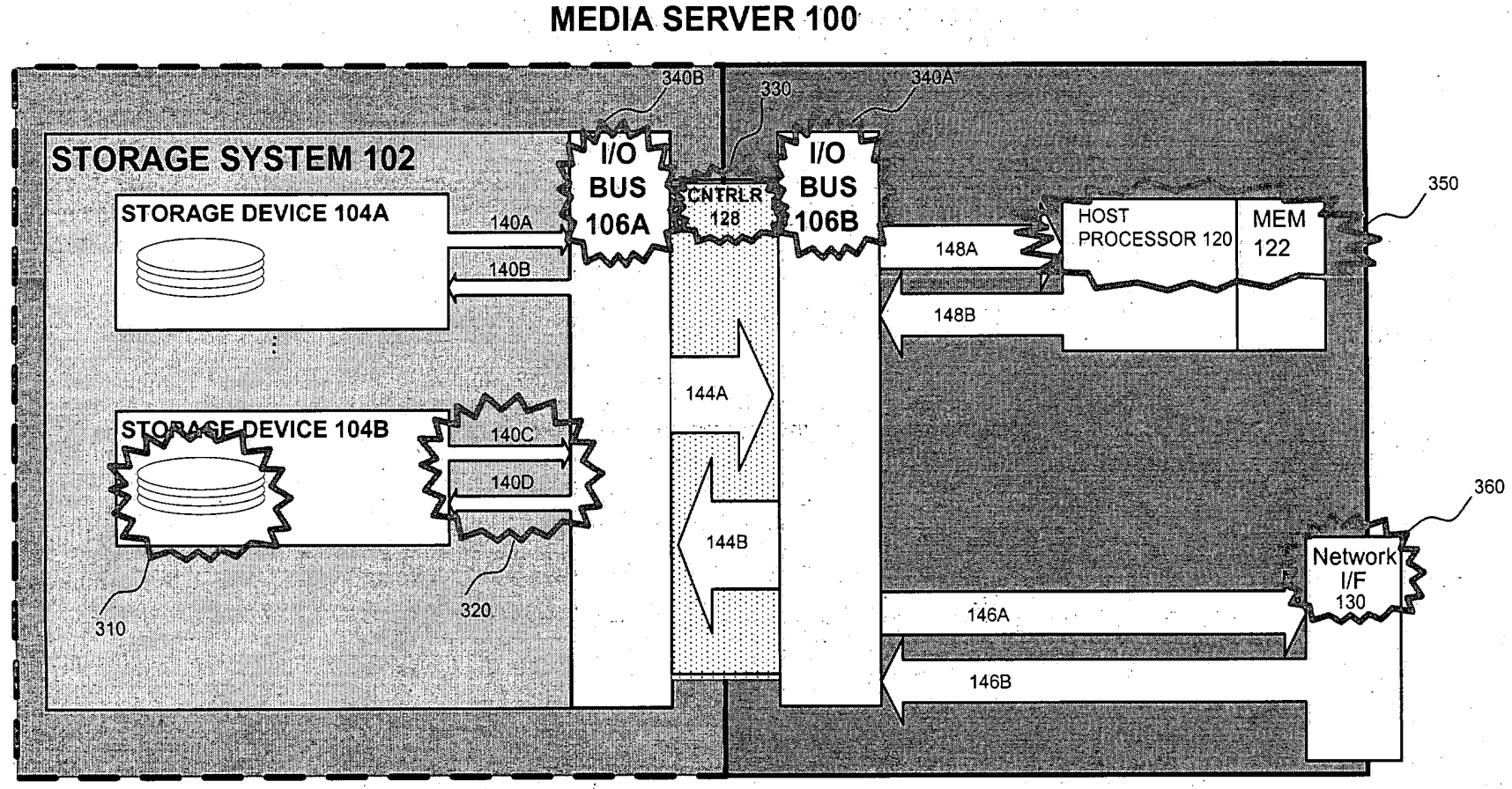

Figure 3 Potential Bottlenecks In a Typical Media Server

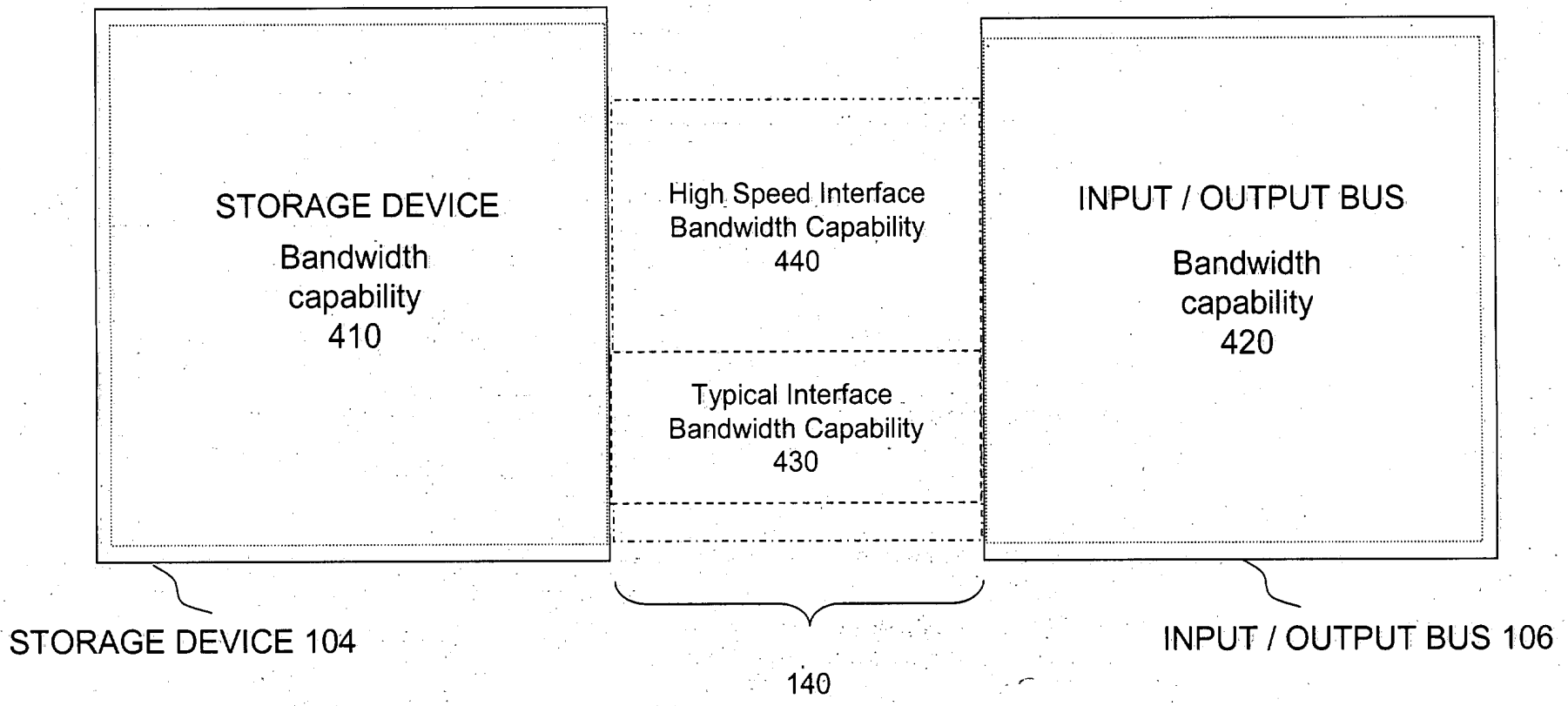

Figure 4 INPUT/OUTPUT BUS THROTTLE

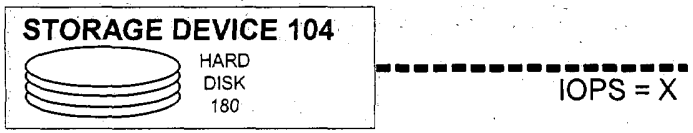

Figure 5A – Typical Input / Output Operations per Second

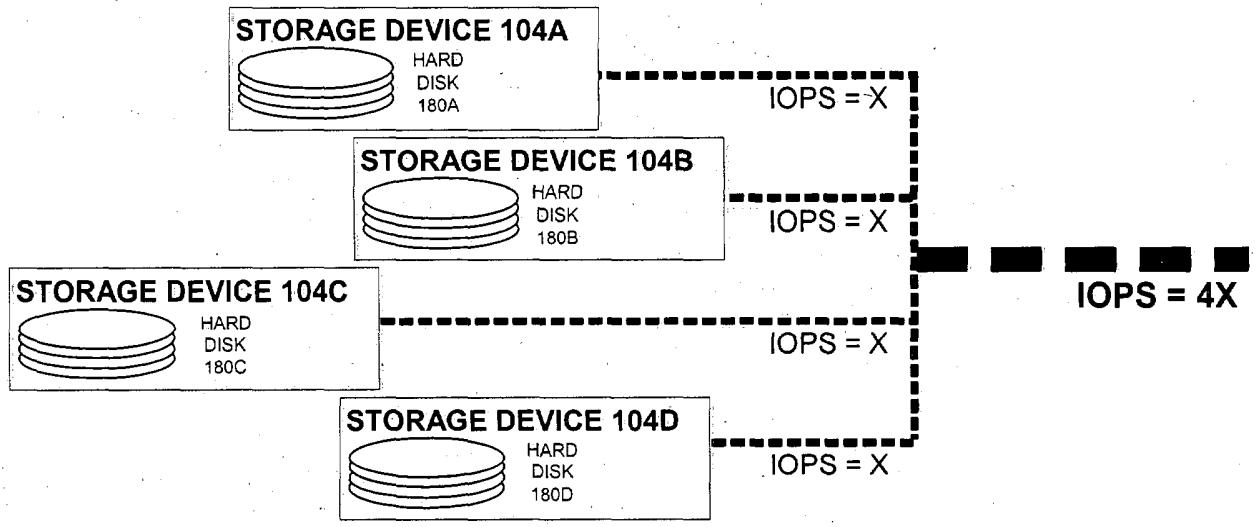

Figure 5B – RAID Input / Output Operations per Second

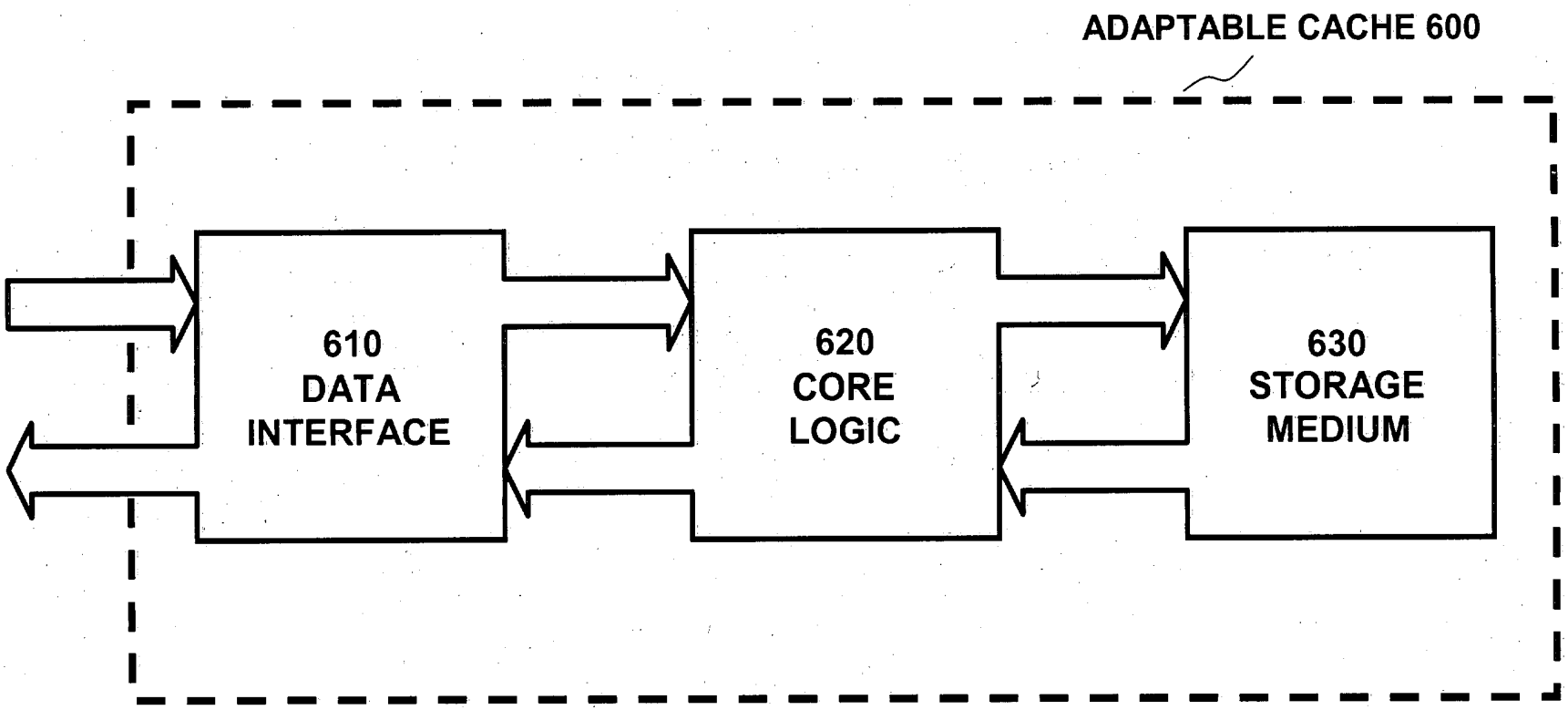

Figure 6A – Conceptual components of Invention

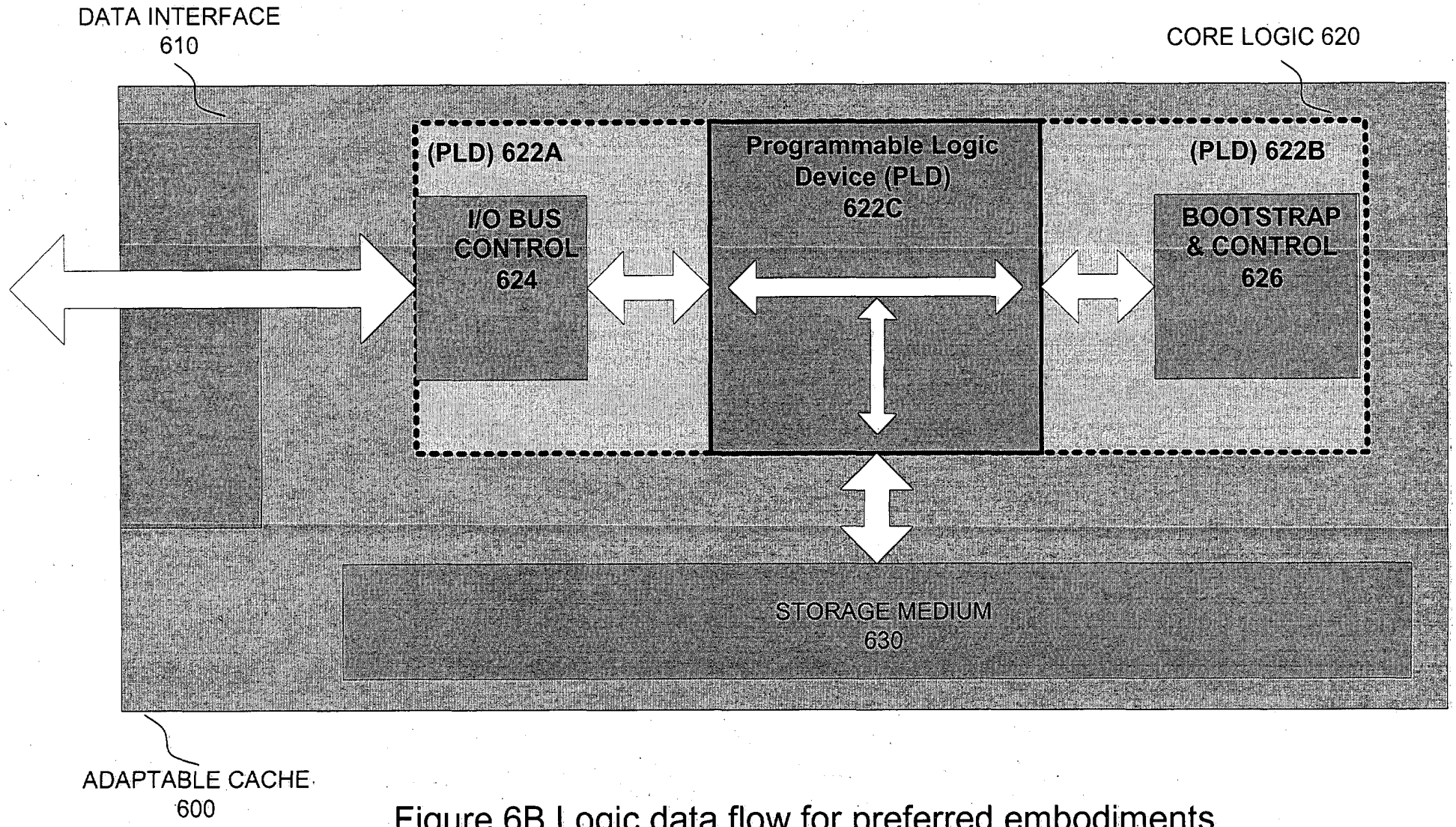

Figure 6B Logic data flow for preferred embodiments

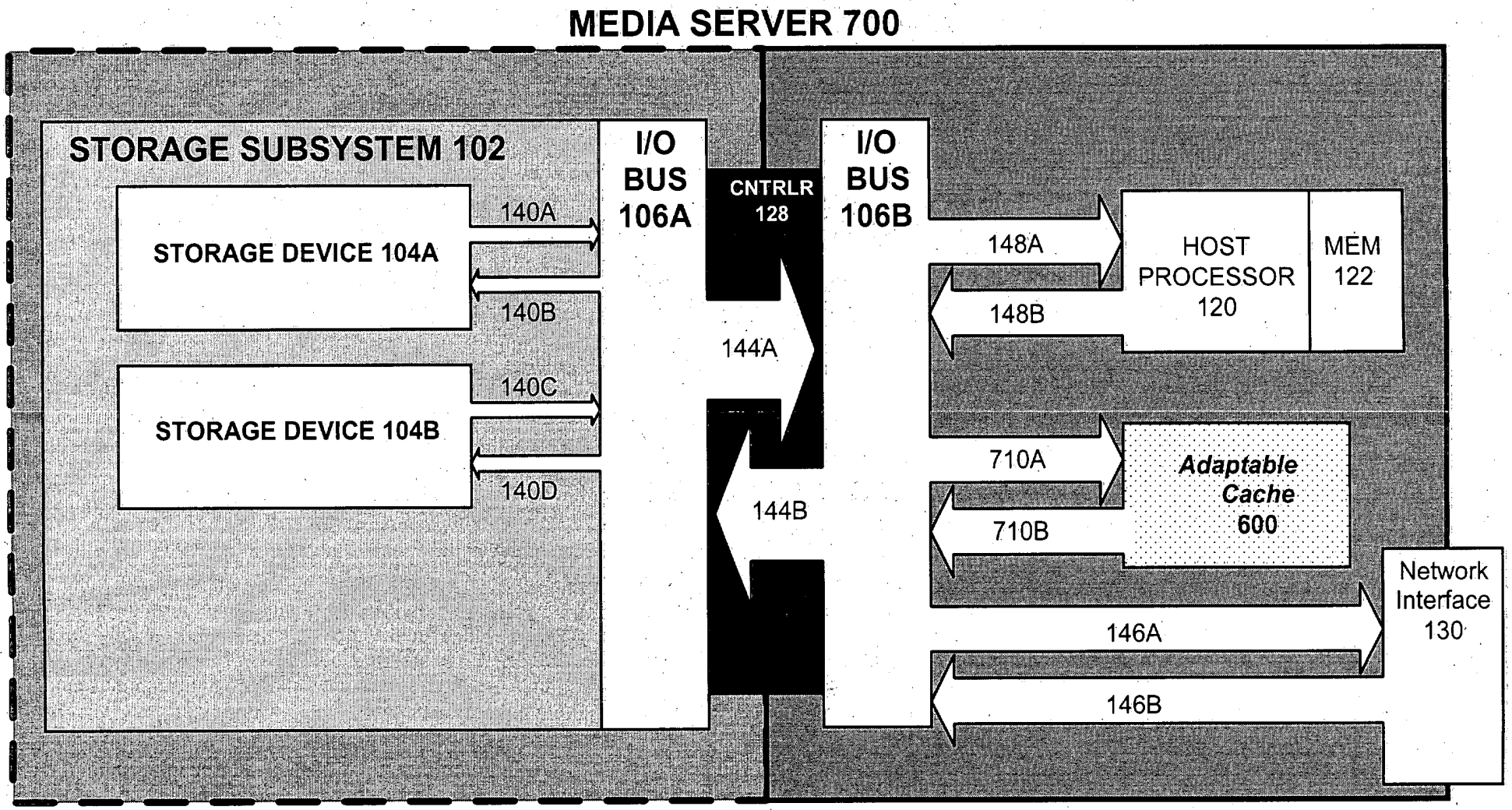
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
140A
140B
140C
140D
I/O BUS 106A
CNTRLR 128
144A
144B
I/O BUS 106B
148A
148B
HOST PROCESSOR 120
MEM 122
710A
710B
Adaptable Cache 600
146A
146B
Network Interface 130

Figure 7

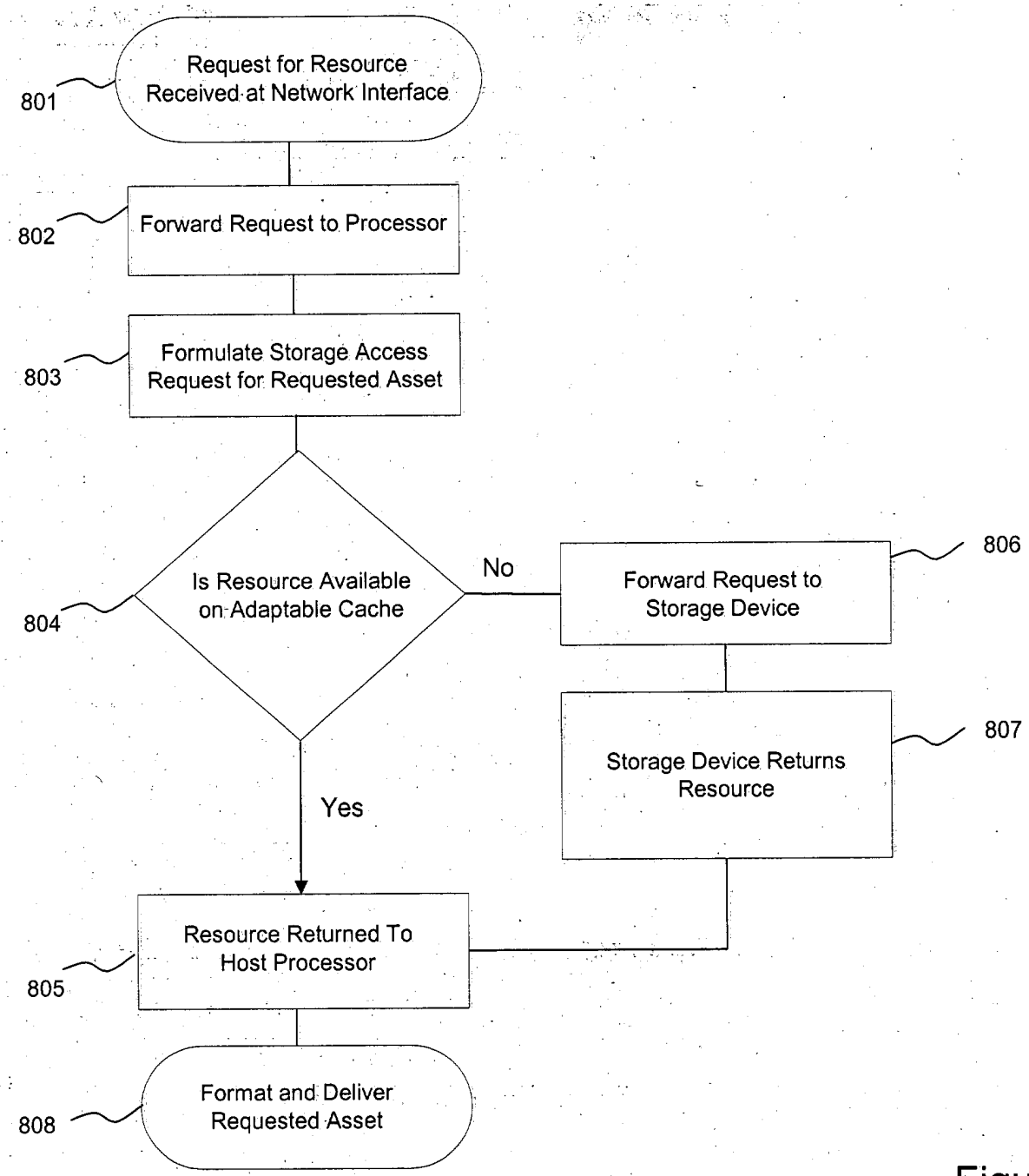
Request for Resource Received at Network Interface
801
Forward Request to Processor
802
Formulate Storage Access Request for Requested Asset
803
Is Resource Available on Adaptable Cache
804
No
Forward Request to Storage Device
806
Storage Device Returns Resource
807
Yes
Resource Returned To Host Processor
805
Format and Deliver Requested Asset
808

Figure 8

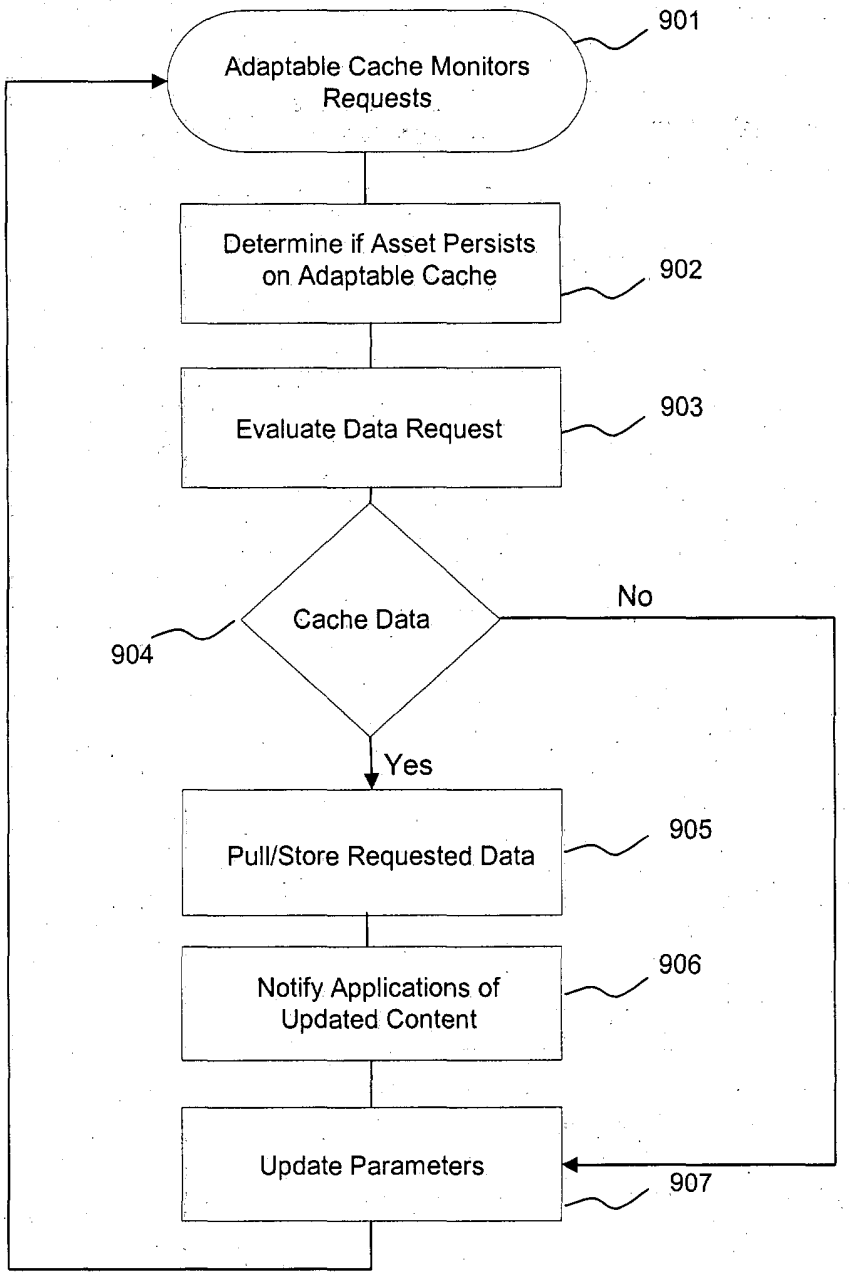
Adaptable Cache Monitors Requests
901
Determine if Asset Persists on Adaptable Cache
902
Evaluate Data Request
903
Cache Data
904
No
Yes
Pull/Store Requested Data
905
Notify Applications of Updated Content
906
Update Parameters
907

Figure 9

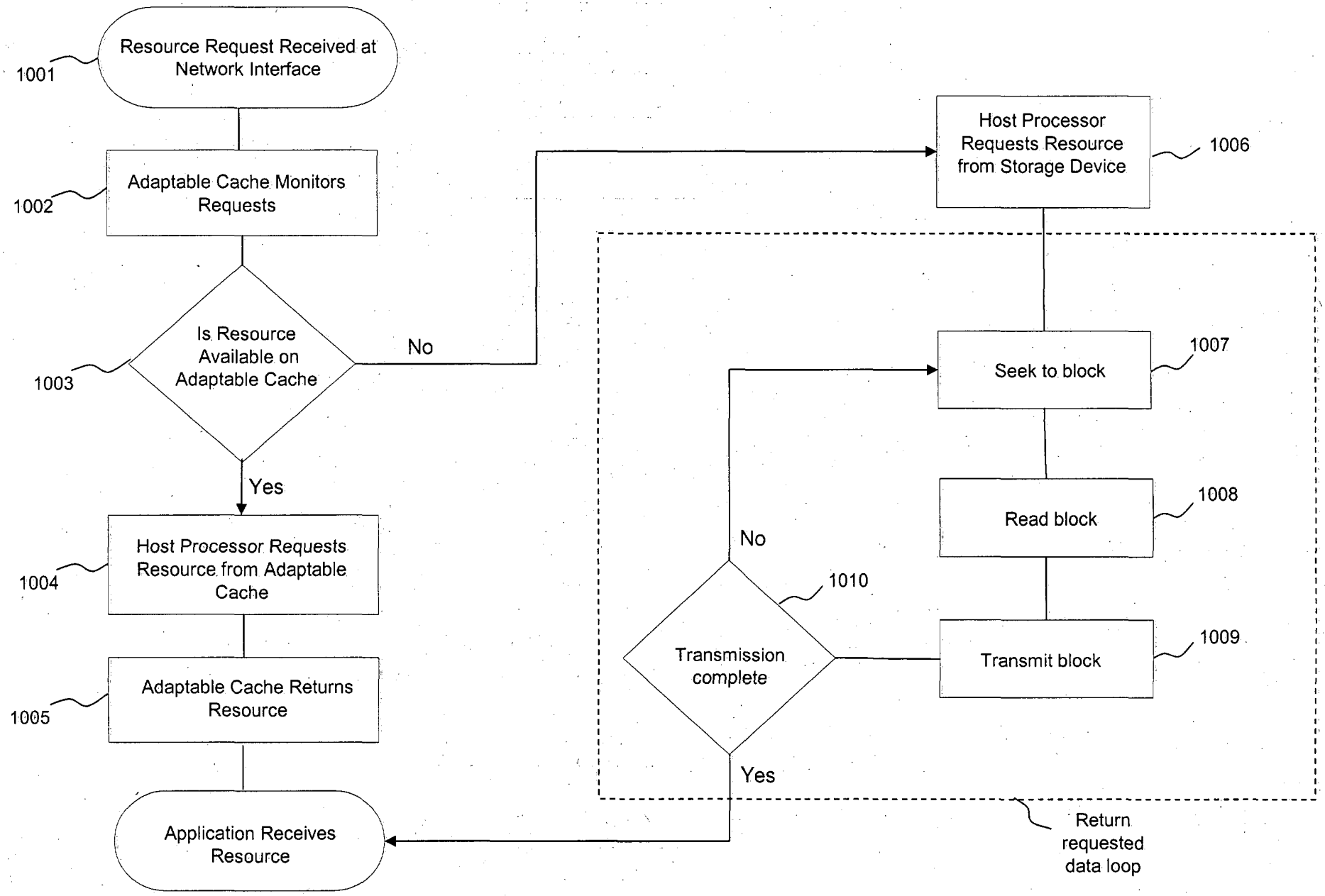
Resource Request Received at Network Interface
1001
Adaptable Cache Monitors Requests
1002
Is Resource Available on Adaptable Cache
1003
No
Yes
Host Processor Requests Resource from Adaptable Cache
1004
Adaptable Cache Returns Resource
1005
Application Receives Resource
Host Processor Requests Resource from Storage Device
1006
Seek to block
1007
Read block
1008
Transmit block
1009
Transmission complete
1010
No
Yes
Return requested data loop

Figure 10

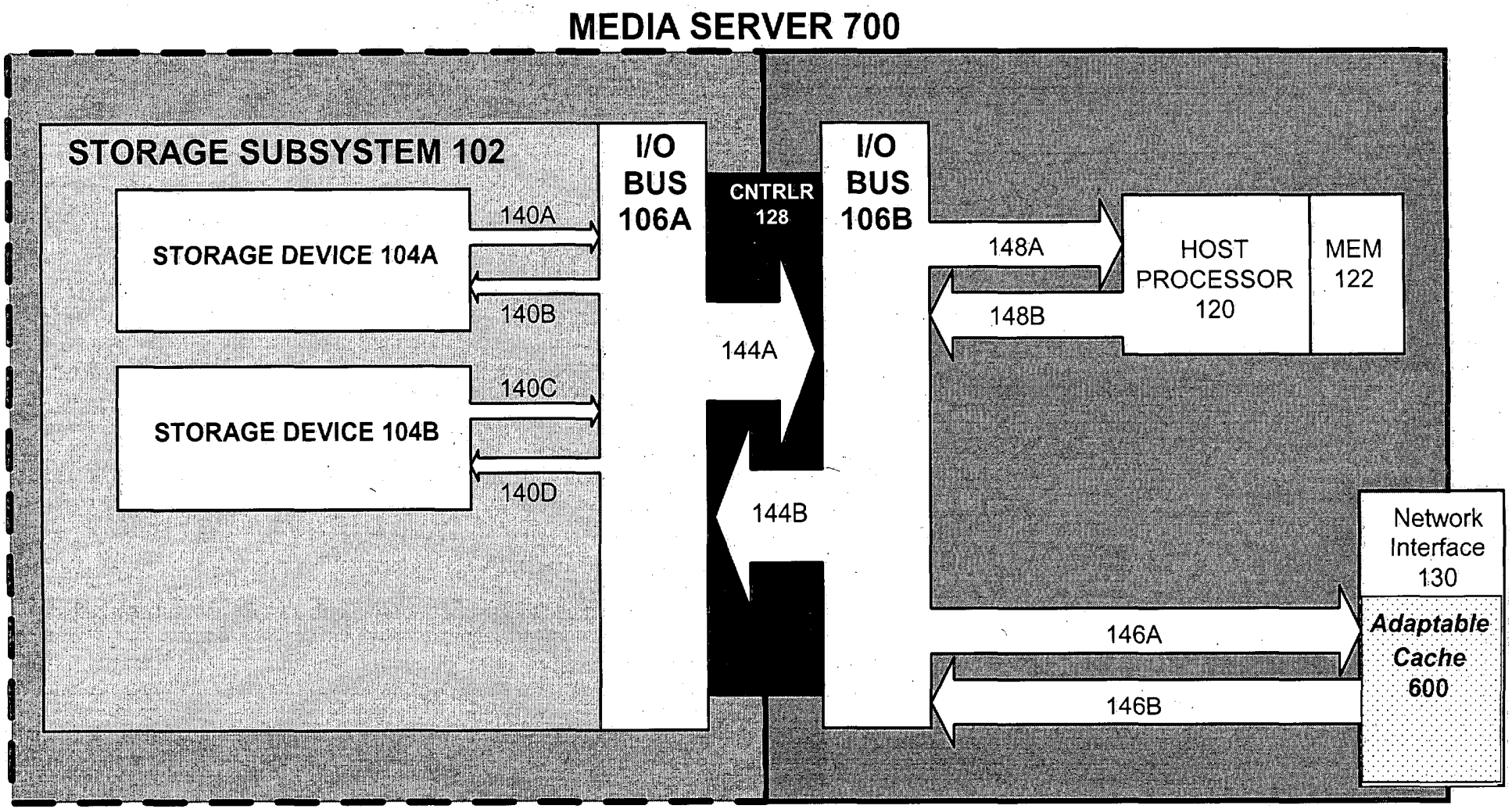
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
140A
140B
140C
140D
I/O BUS 106A
CNTRLR 128
144A
144B
I/O BUS 106B
148A
148B
HOST PROCESSOR 120
MEM 122
Network Interface 130
Adaptable Cache 600
146A
146B

Figure 11

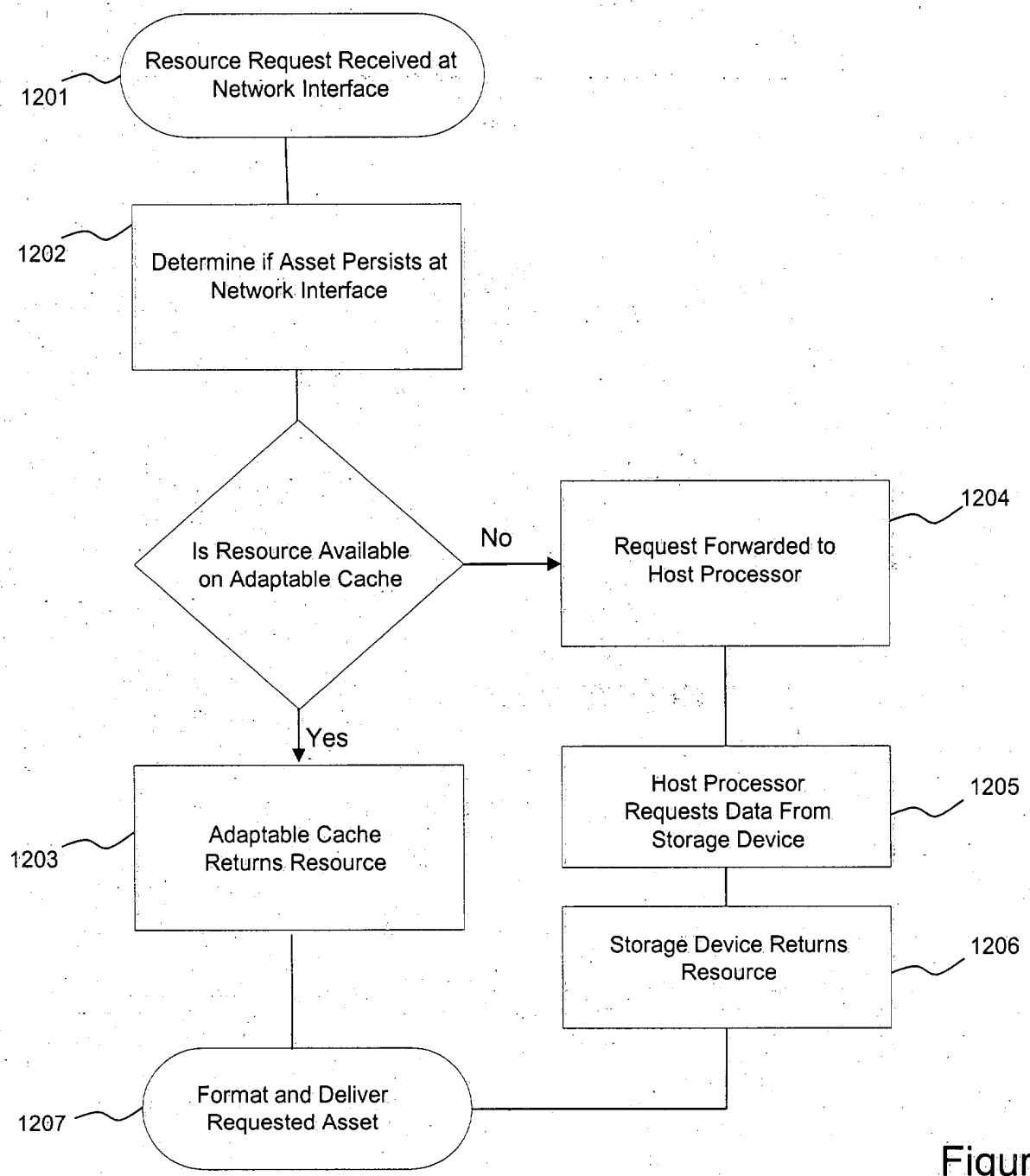
Resource Request Received at Network Interface
1201
Determine if Asset Persists at Network Interface
1202
Is Resource Available on Adaptable Cache
No
Request Forwarded to Host Processor
1204
Yes
Adaptable Cache Returns Resource
1203
Host Processor Requests Data From Storage Device
1205
Storage Device Returns Resource
1206
Format and Deliver Requested Asset
1207

Figure 12

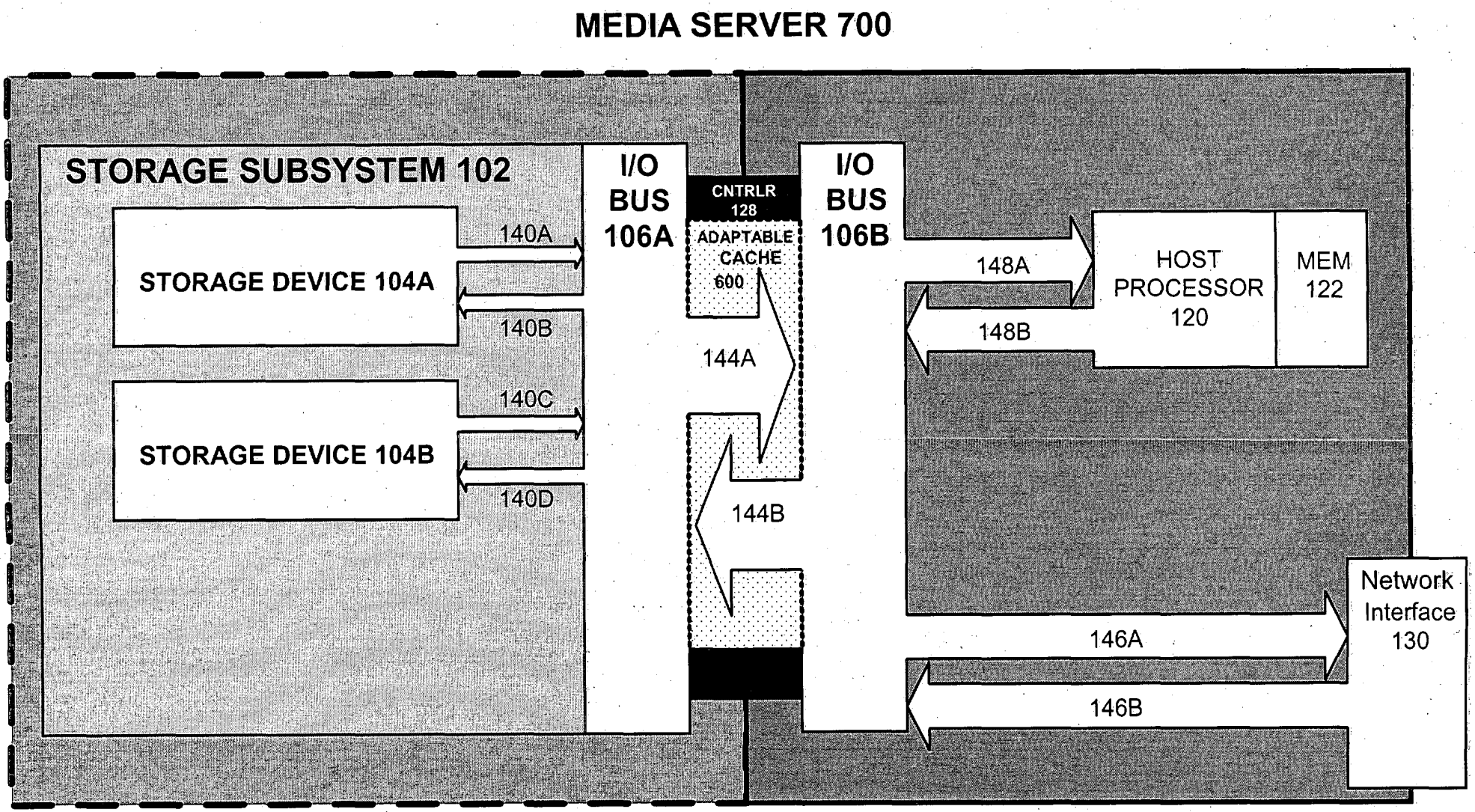
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
140A
140B
140C
140D
I/O BUS 106A
CNTRLR 128
ADAPTABLE CACHE 600
144A
144B
I/O BUS 106B
148A
148B
HOST PROCESSOR 120
MEM 122
Network Interface 130
146A
146B

Figure 13

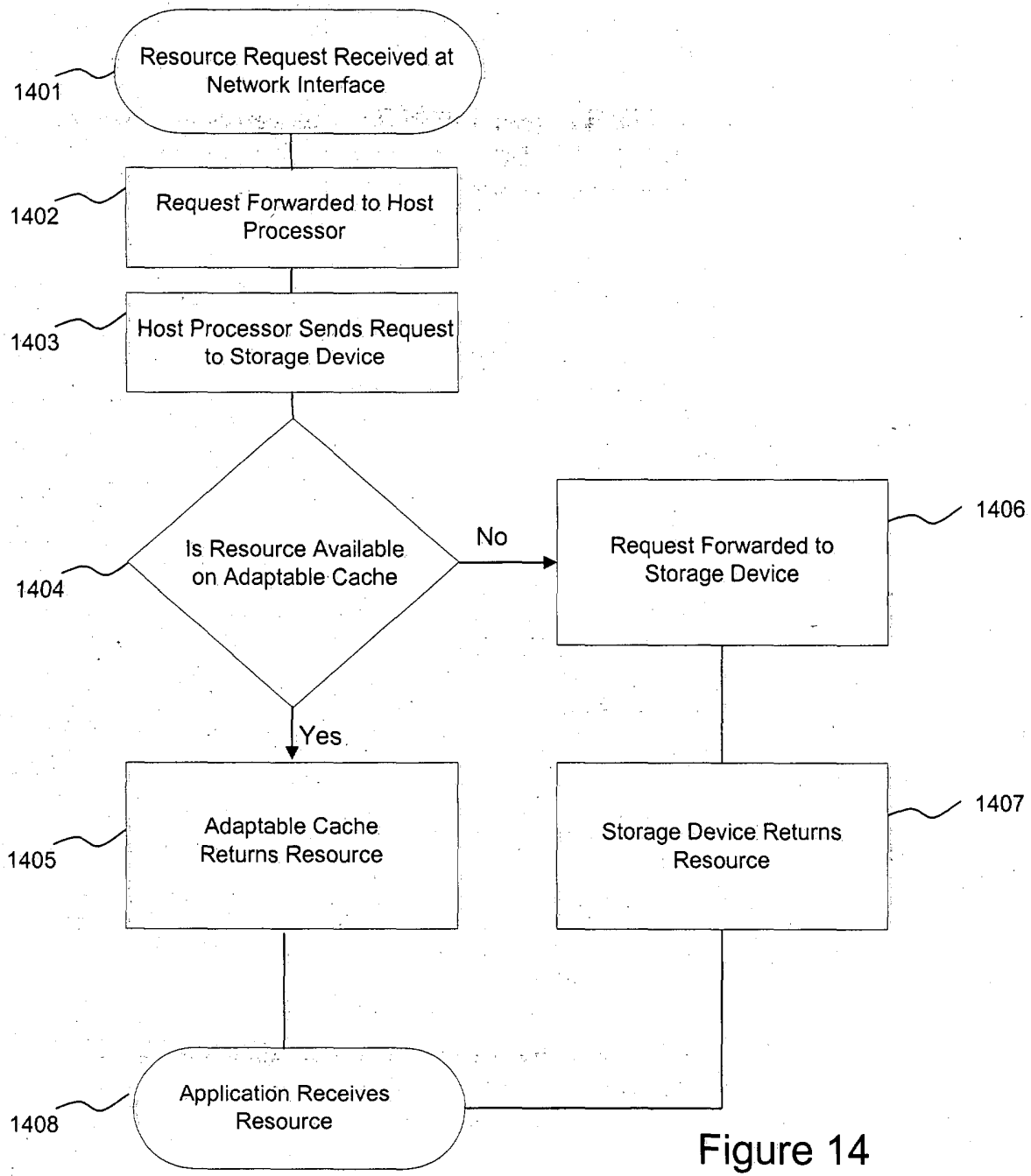
Resource Request Received at Network Interface
1401
Request Forwarded to Host Processor
1402
Host Processor Sends Request to Storage Device
1403
Is Resource Available on Adaptable Cache
1404
No
Yes
Request Forwarded to Storage Device
1406
Adaptable Cache Returns Resource
1405
Storage Device Returns Resource
1407
Application Receives Resource
1408

Figure 14

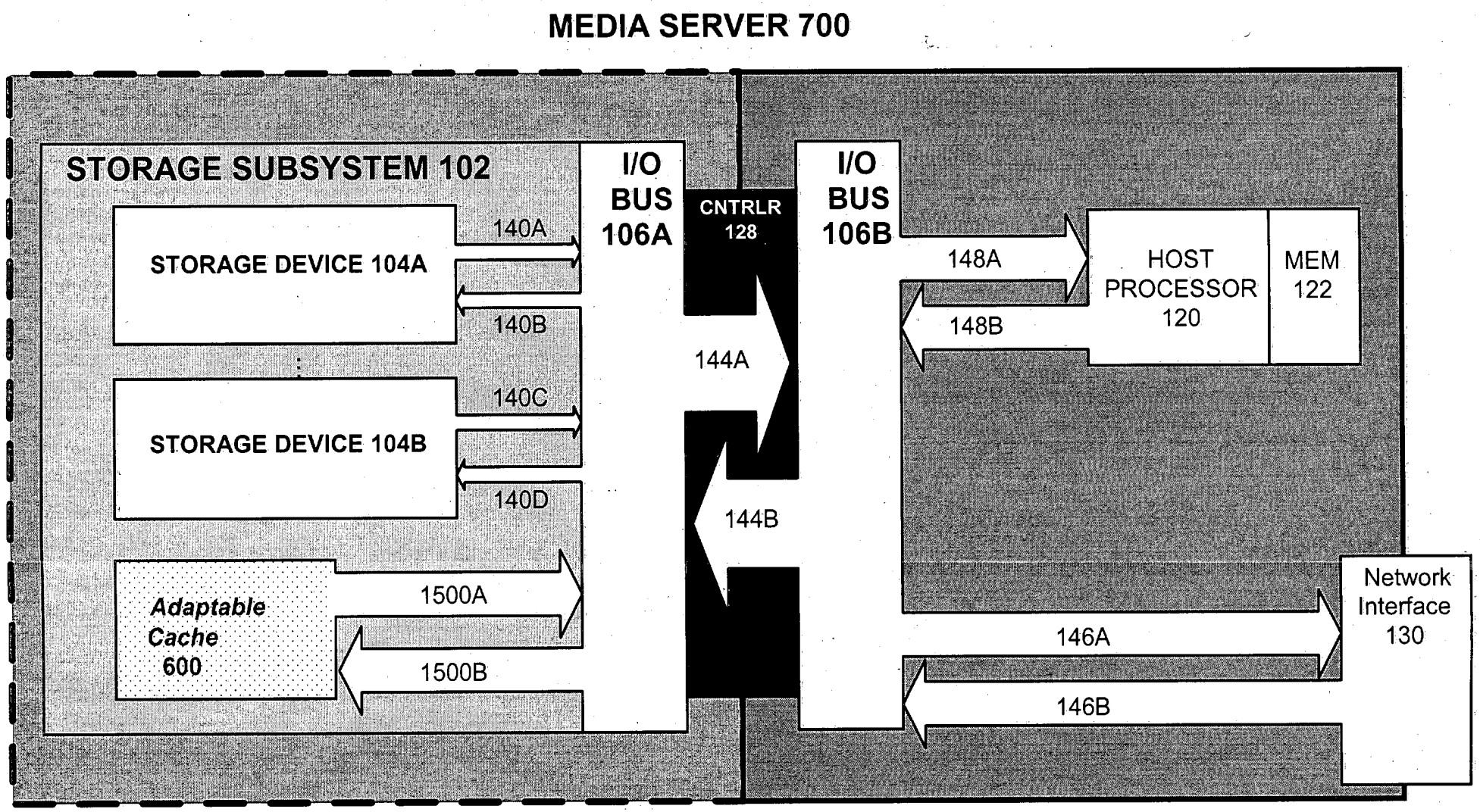
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
Adaptable Cache 600
I/O BUS 106A
CNTRLR 128
I/O BUS 106B
140A
140B
140C
140D
144A
144B
1500A
1500B
148A
148B
HOST PROCESSOR 120
MEM 122
Network Interface 130
146A
146B

Figure 15

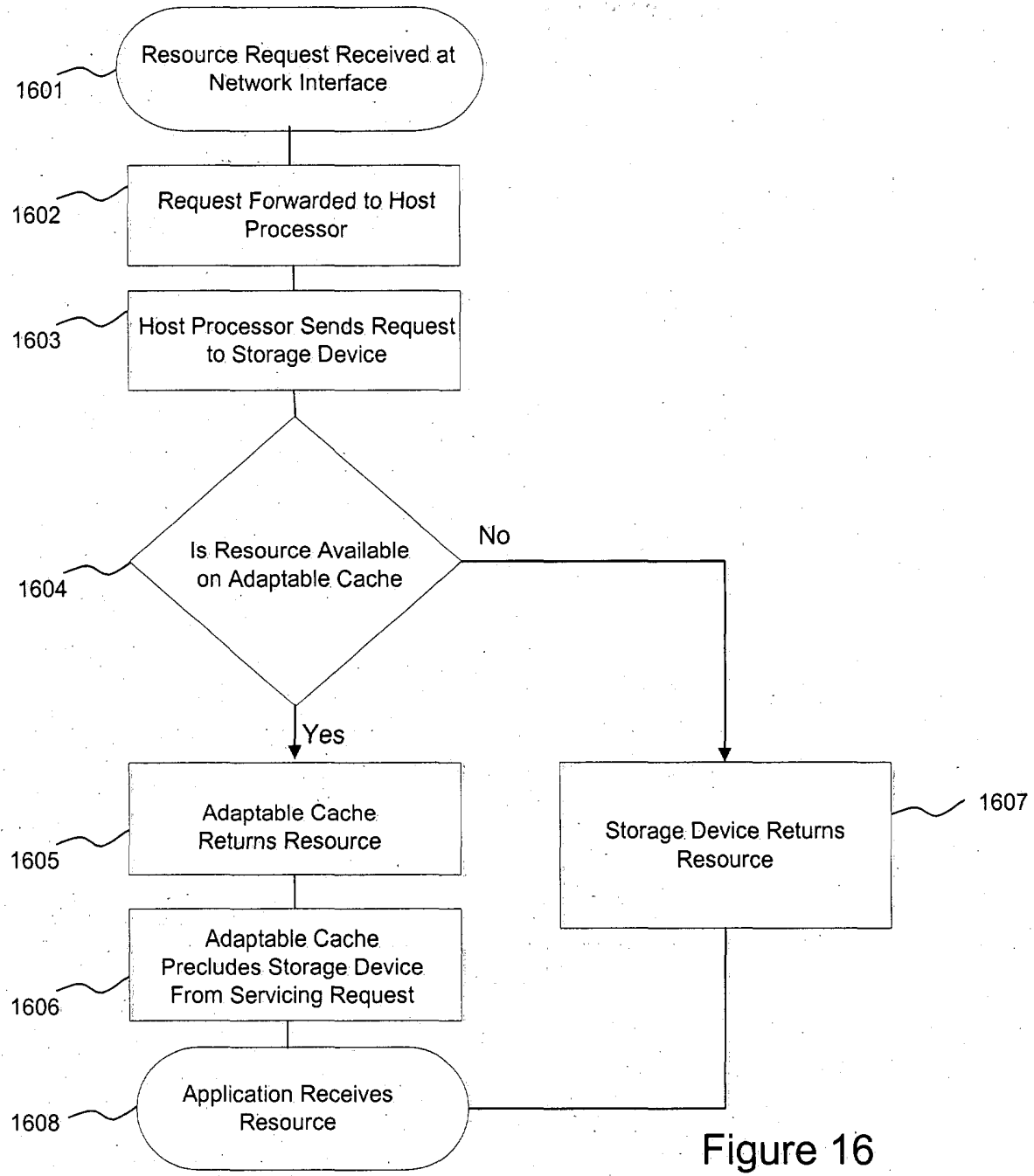
Resource Request Received at Network Interface
1601
Request Forwarded to Host Processor
1602
Host Processor Sends Request to Storage Device
1603
Is Resource Available on Adaptable Cache
1604
No
Yes
Adaptable Cache Returns Resource
1605
Adaptable Cache Precludes Storage Device From Servicing Request
1606
Application Receives Resource
1608
Storage Device Returns Resource
1607

Figure 16